

ANNEX H
PROTOCOL ON METERING and MEASUREMENT OF BULK WATER SUPPLY

1. BWS shall install full-bore electromagnetic bulk water meters with accessories at injection point and drop-off point specification indicated at Annex A. The basis to measure the actual volume of potable bulk water delivered to MCWD will be the aggregate volume of the injection point and drop-off point(s) ("Billing Meters").
2. The readings on the Billing Meters shall be jointly conducted by the both parties within the first week of the succeeding month.
3. MCWD shall be able to monitor flow rate, totalizer reading, pressure, turbidity and residual chlorine to be transmitted every hour at the MCWD SCADA Control Center. All cost incurred in the transmission, interface, maintenance and replacement shall be borne by BWS. This monitoring system that will be provided by the BWS shall be compatible with the existing MCWD SCADA monitoring system, capable of transmitting through SMS/GPRS and other reliable means. However, regardless of the time, in instances when any of the parameters fail to comply with the allowable range set by both parties, the monitoring system shall trigger an alarm to MCWD's SCADA monitoring system. All cost incurred in the transmission of data to MCWD i.e., software, hardware, data loggers, GPRS transmission, etc. shall be borne by the BWS.
4. Anytime during commissioning period but prior to Day 1 of the commercial operations, the billing meters to be installed shall be represented by both parties for inspection. All the billing meters and spare meters shall be subjected to a testing laboratory agreed by both parties. Onsite Installation of meters shall be represented by both parties. After meter installation, a baseline variance between the installed parallel meters (and other possible combination meters) shall be established using the formula:

$$BV_{meter} = \frac{HR - LR}{HR} \times 100\%$$

Where:

BV_{meter} = Baseline Variance

HR = Highest registered reading of the two meters

LR = Lowest registered reading of the two meters

5. During Operations period, successive daily variance meter readings between the parallel meters shall be acceptable if it falls within the $\pm 5\%$ of the baseline variance. The baseline variance shall remain to be the reference unless any of the installed meters has been replaced by a different meter. If a meter has been replaced, a new baseline variance shall be established using the formula above.
6. If $[\text{Var}]_{\text{actual}} > [\pm 5\% \cdot BV]_{\text{meter}}$, then any of the two parties shall notify the other party for a scheduled joint inspection. BWS shall investigate which of the two meters may have been inaccurate through historical readings and will be subjected to test bench by an agreed testing laboratory. The meter when pulled out for testing shall be replaced by a spare meter to be witnessed by both parties. If both of the 2 meters were found to be defective, then volume to be billed shall be the average consumption of the immediately preceding three (3) months.



Terms of Reference
Guadalupe Bulk Water Supply Contract

- 1 7. The BWS agrees to annually test the billing meters and provide the MCWD with a copy of the test results. BWS shall ensure meter is calibrated where the annual meter test shall require the presence of both parties to witness the dismantling, sealing of the meter and testing. In the event that the billing water meter failed the test bench, BWS shall bear the replacement of the billing water meter.
8. Either party may request to conduct a field counter-checking on the accuracy of the billing meters at any given time. A party may request the other party, within thirty days (30) from receipt of billing and at the cost of the requesting Party, for the conduct of additional or special accuracy test on the billing meter by a DOST accredited water meter testing laboratory to verify the accuracy of the billing meter and to ensure that the same meets the accuracy limit. If one (1) flowmeter is confirmed by the laboratory to be defective, the water delivered shall be measured on the basis of the non-defective water meter reading for the period. If both flowmeters are confirmed to be defective, the water delivered shall be based on the average of the immediately preceding three (3) months.
9. If joint investigation results show that there is no defect in the flow meter, billing shall be made based on the actual reading (less the volume delivered in excess of the specified hourly flow rates).
10. Any replacement of a defective flow meter shall be done within five (5) calendar days from the time a suspected defect was confirmed and shall be the responsibility and for the account of BWS.
11. Any protest for over- or under-registration or other defect in the flow meter shall be filed by either party within thirty (30) calendar days from receipt or submission of the subject bill. Failure to protest on time waives the right to seek adjustment of the billed amount.


Prepared by:


ARVIN JOHN M. JALUAGUE
Manager, Water Production Division

Noted:


TOMMY L. GONZALEZ
Acting Manager, PD

Indorsed:


EDGAR D. ORTEGA
Acting-AGM for Operations